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THE BULLETINS WILL NOT APPEAR DURING THE HOLIDAYS. NEXT ISSUE WILL BE JANUARY 9, 1950.

AMERICAN COLONY PHOTOGRAPHERS

THE LONELY SHEPHERD GUARDS HIS FLOCK AS THE LITTLE TOWN OF BETHLEHEM (Bulletin No. 2) LIES STILL IN THE DISTANCE

Bulletin No. 1, December 19, 1949

River Project to Water Dry Australian Acres

A NEW frontier is opening up in the vast and still under-developed continent of Australia. The Snowy River power and irrigation project, just getting under way in the Australian Alps at the southeast corner of the country, calls for construction of seven major dams, 86 miles of tunnels, and 14 power stations.

The ambitious project is the strongest assault to date in arid Australia's long war against dryness. With it comes the promise of future industrialization to attract increased population.

Murray River Half as Long as Mississippi

Maintaining an adequate water supply is the continent's ever-present problem. Through the new works, mountain streams which run off into the Tasman Sea by way of the Snowy River and its tributaries will be usefully rechanneled into Australia's major water system, the Murray-Murrumbidgee-Darling network.

The Murray River is half as long as the Mississippi. It forms most of the boundary between the provinces of New South Wales and Victoria. The section of south central New South Wales between the Murray and its northerly tributaries is called Riverina. This area lies in the heart of the prosperous and populous southeast corner of Australia. Its ocean outlets are Sydney in New South Wales, and Melbourne in Victoria.

Between the two port cities stands the nation's capital, Canberra. Just south of the Australian Capital Territory is the little town of Adaminaby, on the Snowy River high in the Australian Alps, where the current hydroelectric project was launched in October. The "down-under" land reaches its highest point near by in Mount Kosciusko, 7,305 feet above sea level. To the north extends the Great Dividing Range, paralleling the Pacific coast, and to the southwest lie rugged Gippsland and the rainy Dandenong Mountains (illustration, next page).

It was in the Murray River valley that American skill early contributed to the miracle of transforming arid and desolate land into green productivity. In the once-barren Mildura region of northwest Victoria, the Chaffey brothers—fresh from successes in southern California—established one of the most extensive irrigation settlements the world has seen.

20,000 Square Miles Already Irrigated

The pioneering Americans found only three families in the Mildura section when they arrived in 1887 to set up the Renmark Irrigation Settlement. Later, with the labor from eleven communal settlements colonized by a depression-plagued government in 1894, the brothers channeled Murray River water to high-point storage pools from which it was directed into the irrigation ditches. The communal settlements didn't last, but the irrigation system did.

Today more than 20,000 square miles of west Victoria and southwest

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THEODORA PRICE AND IRVIN E. ALLEMAN

RAILROADS STOP SHORT OF AFGHANISTAN; ROADS AND TRAILS CROSS THE LANDLOCKED KINGDOM

The section labeled "India" on this map is now Pakistan. Afghanistan (Bulletin No. 5) also touches the Sinkiang portion of China, three republics of the Soviet Union, and Iran. Such Afghan rivers as the Helmand and Hari have no mouths, but simply disappear in the deserts or salt marshes of neighboring countries.

Christmasy Names Spangle the Land

CHRISTMAS may be "a floating bit of dreamland," as some poet has said. But you can find traces of it even in Uncle Sam's down-to-earth *Official Postal Guide*, in the form of place names that suggest nearly every known phase of the holiday season.

Santa Claus, Indiana (illustration, next page); Bethlehem, Connecticut; Christmas, Florida; and Noel, Missouri, are a few of the more familiar post offices which each year handle a flood of mail from senders wishing to obtain yuletide postmarks.

There Is a Santa Claus—and Only One

Although the federal Post Office Department now has barred extra flourishes by local postmasters using Christmas symbols and mottoes, a town's own holiday name can still give that festive touch to a greeting or package of toys.

Indiana's Santa Claus is the only town so designated in the United States. The privilege is reserved to its post office by congressional act. Idaho, however, has a Santa. There is also only one Christmas—the one in Florida—plus a Christmas Cove, Maine.

On the other hand, seven Bethlehems answer the seasonal roll call: besides Connecticut, they can be found in Georgia, Indiana, Kentucky, Maryland, New Hampshire, and Pennsylvania. The Bethlehem, Connecticut, post office was one of several stations that figured in recent news on the use of especially designed cancellation stamps bearing the now-forbidden Christmas-tree decoration. The town's population is about 350.

Largest of the Bethlehems is Pennsylvania's important steel center, with nearly 70,000 people. Its name was inspired, legend says, by hymns sung on Christmas Eve more than 200 years ago, when pious Moravian settlers founded the city. Bethlehems throughout the Christian world were named for the birthplace of Jesus in the Holy Land (illustration, cover).

There are two Noels—in Virginia and Missouri. Last year, Missouri's Noel post office reported hand-cancellation of a record 650,000 pieces of Christmas mail. This was 800 for each resident of the town.

Three Wise Men in America

Besides specific Christmas names that dot the land, there are dozens that call up Biblical or holiday associations. There is Advent, West Virginia, for the Nativity. Kentucky has a Mary, and Oregon and Utah a Joseph each.

One Wiseman is found in Alaska and another in Arkansas. The third, it may be assumed, is in Wisemantown, Kentucky. There are five Stars and four Shepherds. West Virginia contributes Goodwill; Missouri, Peace Valley; there is Joy in Illinois, Kentucky, Missouri, and Texas; and What Cheer in Iowa.

For the Christmas party, Turkey is available in four states; Cranberry in three. Kentucky has a Mistletoe. Six states count an Evergreen; seven a Pine, and three a Holly (see item following Bulletin No. 5).

New South Wales receive water through a gigantic system of storage reservoirs along the Murray River, beginning at the Hume Reservoir in the shadow of the Australian Alps.

The new Snowy River project is expected not only to augment existing water-storage facilities and to extend irrigation for increased dairy and other farming, but also to provide electric power for large-scale industry in the region. One of the important uses for the power, it is reported, will be to supply atomic-energy research laboratories directed from the National University at Canberra.

The power works, linked with basic Australian and British defense plans, will be buried deep in the mountains. The entire project, it is estimated, will take some 25 years and half a billion dollars to complete.

NOTE: The area of Australia's Snowy River project may be located on the National Geographic Society's map of Australia. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also "Beyond Australia's Cities," in the *National Geographic Magazine* for December, 1936; and, in the GEOGRAPHIC SCHOOL BULLETINS, May 2, 1949, "Australia Deserts to Serve as Rocket Range"; "New South Wales Shows the Way in Australia," April 4, 1949; and "New Opal Field Adds to Australia's Wealth," March 25, 1947.

W. ROBERT MOORE

THE LUSH DANDENONG MOUNTAINS ARE A LINK IN AUSTRALIA'S EASTERN MOUNTAIN CHAIN

Like the Appalachians in eastern America, Australian highlands extend from west central Victoria, through New South Wales and Queensland to the continent's north tip. Most of Australia's rain falls on the ocean slopes of these "dividing" ranges. Short, swift rivers pour the valuable water back into the ocean. A T.V.A.-like project on the Snowy River will catch some of this water and turn it into the westward-flowing Murray River where it can be used to irrigate fertile but dry acres in the interior. The ferns above, near Melbourne, are shaded by eucalypts, giant evergreens native only to Australia. They grow 300 feet high and shed bark, instead of leaves, in winter.

Cape Hatteras Light to Return to Service

UNCLE Sam's tallest lighthouse, a trusty friend to generations of mariners, is scheduled soon to come out of retirement and flash its warnings again across dread North Carolina shoals.

Shut off 13 years ago in favor of a modern steel-girder tower, the 193-foot Cape Hatteras Lighthouse (illustration, next page) is being reactivated by the federal government. The coming event has put all Hatteras Island in an even more festive mood than the season normally brings forth.

Graveyard of the Atlantic

The reason for this happy state is that the old beacon long has been a sort of Hatteras tradition, and one of its proudest landmarks. When it was abandoned to the advancing Atlantic in 1936, residents of the lonely wind-swept island, midway down the Atlantic coast of the United States, never fully approved of its replacement. The latter, they said, didn't really look like a lighthouse. Also it confused seamen since it was farther inland than the old light.

Completed in 1870, the historic beacon has a long record of maritime service. Its domain, the treacherous Diamond Shoals southeast of the cape, ranks as the deadliest ship trap along the United States east coast. Sailors call the area the "graveyard of the Atlantic."

Geography and meteorology have combined to give the cape's waters this grisly nickname. There the warm Gulf Stream collides with the cold remnants of the Arctic current. The result is a fierce swirling sea which, even on "calm" days, sends waves leaping into the air.

Overhead, cold and warm air masses also clash, generating wild storms and heavy fogs. The traditional Hatteras wreck involves a ship which loses its rudder or mast during a storm and is carried by whirling currents onto the shoals.

Today the number of Hatteras accidents has been sharply reduced thanks to radio beams, radar, better weather warnings, and other maritime developments. The bones of some of the ships pounded to pieces there still are to be seen on the beaches. They are grim reminders of the likely fate of any vessel driven upon the shoals.

Ground Anchored by Grasses

The cape's candy-striped lighthouse itself almost became a victim of the Atlantic. When it was abandoned, waves were washing away the beacon's sandy base. It seemed only a matter of time before the old light would tumble into the ocean.

Then the federal government went to work to restore the ground on which the lighthouse stands. By building a series of brush fences, a new sand dune was raised. Sea grasses were planted to anchor the new base. It has expanded until now the light is out of danger, making possible its reactivation.

The beacon returning to service, however, was not the first one to stand sentinel on the cape. As early as 1798 a light was erected at Hat-

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Louisiana comes up with Trees, Alabama with Candle; and to top the decorations, Pennsylvania has its Angels.

Young America on Santa Claus's list may be located in Indiana and Minnesota. His Bells are in Tennessee and Texas. There is Snow in Oklahoma, and although no Reindeer as such, the jolly old fellow can call on Vixen and Comet, both in North Carolina, for two of the Christmas poem's eight prancing steeds needed to carry a sled over Chimney Rock, also in North Carolina.

P.S.: The *Postal Guide* also carries a post-Christmas reminder for the head of the house: of course it's Bill (Wyoming).

NOTE: United States towns whose names are associated with Christmas may be located on the Society's map of the United States.

For additional information on Christmas, see "Bethlehem and the Christmas Story," in the *National Geographic Magazine* for December, 1929.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, December 15, 1947, "How Santa Claus Came to the United States"; and "From Shut-In Austrian Valleys Came Beloved 'Silent Night'," December 17, 1945.

WILLARD R. CULVER

LETTERS TO "DEAR SANTA CLAUS" OFTEN FIND THEIR WAY TO THIS MIDWEST HAMLET

Though Santa Claus, Indiana, is not the North Pole of children's imagination, its postmaster tries to handle all Christmas mail that reaches him. Interested people everywhere help gratify the youngsters' wishes, thus proving that there is a Santa Claus. The post office occupies space inside the general store. Should Santa visit his namesake town this year, his reindeers would have a paved road to prance on after landing.

IS YOUR CLASSROOM WELL SUPPLIED WITH MAPS—

the modern, visual medium for interpreting history and keeping abreast of the times? The Society's 10-color wall maps cost only 50¢ in the United States and possessions; elsewhere, 75¢. Send for price list.

Tropic Fireflies Serve as Lamps and Jewels

THE season of tall tapers gleaming on holiday buffets, and tiny electric lights glittering gaily on Christmas trees recalls that below the Tropic of Cancer America's summer nights are lighted with the flicker of the firefly.

Always, somewhere in the Americas, this active little bug with the self-lighting equipment is brightening dark corners on sultry summer nights. And now that the northern winter has cut short its activities in the United States, the "lightning bug" is flashing its beams down in Argentina and Chile.

In Mexico, Brazil, and other parts of the American tropics, fireflies grow so big as to put United States species to shame. Best known of the tropical flying mazdas is the *cocuyo*, or *cucujo*.

Firefly Is a Beetle

To the bug professor (entomologist), the *cocuyo* is *Pyrophorus noctilucus* of the pentamerous family Elateridae. They call it the Elator firefly "for short."

Seen by day, the *cocuyo* is revealed as a greenish-black beetle, one to two inches long. Behind each eye is a small transparent lump filled with a luminous substance. When the *cocuyo* decides to light up, it blazes all over.

As few as four Elator fireflies can throw enough light for reading. Mexican Indians trap them in mesh baskets or fasten them to their ankles to light their path through the forest at night. Indian women wear them in their hair under a gauze veil, or fasten them to their festival costumes where they glow like jewels. For the girls of Panama they serve as the latest thing in "scatter pins" (illustration, next page).

Flying through the darkness of night, the gleaming insects suggest fiery dragons. At close range, their lighted eyes look like infinitesimal automobiles with headlights glaring. Collecting by the thousands in many forest trees, they simultaneously flash, darken, and flash again, as though controlled by an electric switch.

"Glowworms" May Be Firefly Eggs

The light from the insect's head is usually a rich yellow-green. In some species the body light is orange, or orange-red. It is not surprising that the earliest European travelers in the New World—four centuries ago—recorded their amazement at riders of the night sky with two green headlights and a red taillight!

North of Mexico, the lightning bugs are beetles of the family Lampyridae. In some species, adults, larvae, and eggs are all luminous. Luminous spots in the grass at night, often called glowworms, may be eggs, larvae, or wingless females. Lampyridae rarely flash west of the Rockies. That region's commonest firefly combines a luminous but wingless female and a flying, non-luminous male.

In Baltimore, boys collect fireflies in nets and sell them to the scientists at Johns Hopkins University for a bounty of 25 cents for 100. The

teras on the recommendation of Alexander Hamilton, whose position as Secretary of the Treasury included administration of lighthouses. Damaged during the Civil War, it was razed when the present light was built.

NOTE: Hatteras appears on the Society's map of the Southeastern United States.

For further information, see "Exploring America's Great Sand Barrier Reef," in the *National Geographic Magazine* for September, 1947*; "Tarheelia on Parade," August, 1941; and "A Bit of Elizabethan England in America," December, 1933; and, in the GEOGRAPHIC SCHOOL BULLETINS, January 10, 1949, "'Kitty Hawk' Return Recalls Odd Sidelights." *(Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.)*

JOHN HEMMER, NORTH CAROLINA STATE NEWS BUREAU

A GIRL OF CAROLINA'S OUTER BANKS SPEEDS FOR THE SURF AT THE BASE OF HATTERAS LIGHT

Afghans Seek Aid in Modernizing Country

ANCIENT Afghanistan wants to be among the first in line when the United States puts into effect the newly authorized program for technical aid to under-developed countries.

Overwhelmingly an agricultural and grazing country, the long-isolated "Secret Kingdom" needs a large measure of such assistance to carry through long-term plans to provide its people with hard-surface highways, new industries, and modern schools and hospitals.

Highway and Street Building

Considerable American skill aready has been enlisted in the campaign to take up the slack of time. Centuries have passed and barely touched the Texas-size nation in the tangle of mountains between the Soviet Union and Pakistan (illustration, inside cover).

One United States construction firm has just finished a new 80-mile highway (illustration, next page) from Kandahar, the second-largest city, toward Chaman beyond the Pakistan border. Completion of irrigation dams on the Helmand River also is being pushed to open up new land for agriculture in southwest Afghanistan. Advance signs of modernity appear in Kabul, the capital, where streets are being paved for the first time.

These are dramatic changes for mysterious Afghanistan, where virtually all foreign influence or penetration was strictly forbidden until a few years ago. They are symbols of a sudden awakening by a country which still bears the mark of a long-forgotten past.

For Afghanistan today is only beginning to learn the vast usefulness of the wheel, and has yet to build its first railroad. Its cities, with few exceptions, are linked by crude dirt roads. These routes have been trade-caravan trails for centuries. One of them—from Kabul to the Khyber Pass—was the historic route to conquest for fierce, hard-riding tribesmen thundering down into northwest India.

First Westernizing Drive Failed

About half of the country's estimated 10,000,000 people are nomads who tend their herds, principally sheep, and live in tents of black goat's hair. Most of the rest are farmers, occupying primitive villages in the stretches of fertile land in the northeastern and western regions.

Once before, in the 1920's, the Afghans found themselves facing the demands of modernization. That program, initiated by their former King Amanullah, sought to unveil the Moslem women, popularize Western dress, and introduce a number of other reforms which clashed with ancient tradition. But Amanullah attempted too much too rapidly. A revolt resulted, and he was forced to flee the country.

The current program is designed to move more slowly, proceeding first along economic lines with as little interference as possible with old customs. Its aims are confined largely to improving agriculture and communications, and laying the groundwork for industry.

The present mainstay of the national economy is the export of the tightly curled karakul, or Persian, lambskins prized in making women's

scientists hope to benefit mankind by discovering the secret of the firefly's efficient heatless light.

The problem is to make *luciferin* in the laboratory. This is the substance the firefly forms in special cells. At will, the bug admits air to the luciferin cells, causing the mild oxidation that produces instantaneous cold light.

Even in the cold light of the fluorescent tube, man fails to match the firefly's chemical luminescence, since he must have a tiny electric current as "exciting" agent.

In the firefly's luminescence, almost no energy is lost as heat or ultraviolet rays. By comparison, man-made gas and electric light involves 90 per cent or more energy loss as heat. Scientists say that even the sun's energy is converted to light in only one-third proportion.

NOTE: See also, "Exploring the Wonders of the Insect World," in the *National Geographic Magazine* for July, 1929.

LUIS MARDEN

WITH FIREFLIES ON HER SHOULDER, THIS PANAMA BELLE IS READY FOR AN EVENING FIESTA

Pins through the horny sections of the unusual insects keep them in place. The girl holds a hollow section of sugar cane which serves as a "jewel box" during the day.

coats. Uncle Sam alone purchases between $10,000,000 and $20,000,000 worth each year. With these American dollars, the Afghans are paying the cost of the first limited installment of their hoped-for economic transformation. With an eye to the future they also have obtained a loan of $21,000,000 from the United States Export-Import Bank.

NOTE: Afghanistan is shown on the Society's map of Asia and Adjacent Areas.

For additional information, see "Back to Afghanistan," in the *National Geographic Magazine* for October, 1946; "Afghanistan Makes Haste Slowly" and "Kingdom of Many Tribes" (12 color photographs), December, 1933; and in the GEOGRAPHIC SCHOOL BULLETINS, November 29, 1948, "Afghanistan Gradually Discards Isolation"; "American Teacher Bicycles Afghan Trail," January 13, 1947; and "Kabul, Afghanistan Capital, Feared Foreigners, Fought Progress," March 5, 1945.

MAYNARD OWEN WILLIAMS

AMERICAN AND EUROPEAN INFLUENCES REACH AFGHANISTAN'S CARAVAN TRAILS

From Detroit came the truck; from Europe came the scenes painted on the side. These Afghans "fill 'er up" for a ride along a new road near Kandahar.

Mr. Holly Helps Mrs. H. Bring Holiday Cheer

When holly with berries is scarce, Mr. Holly has to step in to help supply enough holiday boughs for America to "deck its halls." Mrs. Holly, the female of the species, normally bears the brunt because she alone bears the berries. Actually, male holly, since it is more plentiful, often makes the greater contribution to holiday cheer. Artificial berries and bright red ribbons are used to set off the glossy green leaves.

Horticulturists say that only about one-tenth of the holly seeds that sprout produce female trees; and these are the ones raided by gatherers in years when berries abound. Growing in the soft loam of eastern coastal regions, American holly varies from dwarf bushes in New England to trees 50 feet high farther south along the Atlantic and Gulf coasts. The chalk-white hard wood is used in inlay work by cabinetmakers, and is dyed black as an imitation ebony.

Though holly is now a symbol of Christian celebration, its use goes back at least to the pagan festival of Saturnalia, when the Romans exchanged sprigs of holly with other tokens of good wishes.